Comments on RM-11306
(The ARRL's Petition for Rule Making regarding regulation by bandwidth rather than mode)

Thank you for the opportunity to comment on this proposal. I have serious Reservations with this petition to switch to regulation by bandwidth which includes provisions to allow expansion of semi-automatic operation thus I recommend either rejection or modification to significantly increase current restrictions on semi-automatic operation and retain restrictions on automatic operation.

SUMMARY RECOMMENDATION

Where the petition deals solely with regulation of Amateur bands by bandwidth rather than by mode it has considerable merit and should be accepted with minor changes to the proposed bandwidth sections on several bands. The current rules which do not allow the use of a narrow band mode to send data and video no longer makes sense. The proposed change will allow considerable experimentation in modes while preserving space for narrow band modes. Below I will itemize my recommended changes. With these changes I fully support the regulation by bandwidth sections of this petition along with other exceptions not related to the operation of semi-automatic stations.

Where the petition proposes regulatory changes relaxing controls on semi-automatic stations, it is seriously flawed and needs major revision. Based on my personal experience and observation I believe that live communications between two individual amateurs need significant protection from the incompatible behavior of semi-automatic and automatic station operations. I believe that semi-automatic stations as well as automatic stations need be restricted to narrow spectrum segments. The existing rules allowing semi-automatic station to operate across the data segment with 500 Hertz or less bandwidth signals is not working since the semi-automatic stations are not capable of intelligent detection of in-progress communications before replying to a calling live operated station. This significant constraint, in the ARRL's words, in the operation of semi-automatic stations needs to not only be retained but also be strengthened by putting both semi-automatic and automatic stations in a restricted portion of the bands so neither will interfere with live amateur to amateur communications.

COMMENTS ON REGULATION BY BANDWIDTH

I believe that the primary justification in support of regulation by bandwidth is to allow experimentation in modes while providing for separation of narrow and wideband modes to prevent the narrow band modes from being overrun by wideband modes. I do not accept that the primary justification for this change is

to allow higher speeds as stated in section 10 of the petition's introduction (see page 10). In addition this will allow the mixing of content in person-to-person contacts, for example mixed video, speech, and data, or digital exchanges of data as a precursor to a person-to-person voice contact.

The bandwidths selected by the ARRL are somewhat confusing as "necessary" bandwidth. There are several digital modes that appear to be 500 Hertz wide near their –3 dB points and it is presumed that this would be permitted as "necessary" bandwidth even though the bandwidth containing 99% of the transmitted signal is much greater. Amateurs have been showed to be capable of dealing with "occupied" bandwidth on 60 meters. The FCC may want to consider using occupied bandwidths of 200 Hz, 1000 Hz, 2.8 KHz, 4 KHz, and so on. I am concerned that the necessary bandwidths would not be enforceable.

I believe this petition should not be used to reallocate current RTTY/data space to SSB use. Thus the start of the 3.5 KHz space should in all cases be the existing start of the voice and image segments. Novice refarming when approved could modify the 3.5 KHz starting point. I recommend the following changes to the proposed bandwidth rules:

- 160 meters. Two tiers are recommended, 500 Hz and 3.5 KHz with the 3.5 KHz section starting at 1.85 MHz (recognizing that this means that the lowest LSB carrier frequency would be 3.5 KHz higher for an amateur using the full 3.5 KHz necessary bandwidth for SSB).
- 75/80 meters. The 3.5 KHz segment should start at 3.75 MHz.
- 40 meters. The 500 Hz segment should start at 7.070 MHz. The 3.5 KHz section should start at 7.150
- 30 meters. There should not be any 3.5 KHz segment here. Regardless of good intentions, this would allow voice. Alternatively allow 1000Hz starting at 10.130 MHz.
- 20 meters. The 500 Hz segment should start at 10.080 KHz. The 3.5 KHz segment should start at 14.150 MHz
- 10 meters. The 500 Hz segment should start at 28.1 MHz. The 3.5 MHz segment should start at 28.300 MHz.

In the above changes the 500 Hz segments are set to protect narrow band CW and digital operations from RTTY and 300-500 Hz wide data transmissions to avoid interference I am seeing between CW transmissions and digital transmissions that start up on top of existing CW operations. I have observed this also from both current PACTOR I/II modes and from sound card digital modes.

COMMENTS ON REGULATION OF SEMI-AUTOMATIC AND AUTOMATIC OPERATIONS

I believe that semi-automatic modes are creating significant interference to live amateur-to-amateur communications. I have observed many Pactor starting up on my existing live communications trying to connect to stations that, according to the called station, never existed on that frequency. (I have written to the owners of the semi-auto stations being called by folks interfering with me and have been told they never operated station on the calling frequency). If at some point in the (distant) future is can be proved that modems exist that can duplicate a human's ability to discern existing communications and never reply on top of another communication that this restriction can be lifted. Thus in my comment is that if the operation of semi-automatic stations are restricted to relatively small sections of the band along with automatic stations then there will not be issues with completely incompatible modes of similar bandwidth competing for the same portion of the band. This will resolve the most serious flaw of this petition. I have personally experienced interference, and observed interference, from amateurs trying to connect to semi-auto stations and from semi-auto stations starting up where I could not hear the requesting live operated station. The applications that amateurs use to try to connect to semi-automatic stations are aggressive in their connect attempts thus do not appear to be able to respect the use of the spectrum by others. Given that the semi-automatic responder does not have human intelligence, it is also incapable of spotting existing activity so just responds on top of existing activity that cannot be heard by the requesting amateur if they were actually listening. For this reason I believe that semi-auto and automatic stations are not compatible at all with amateur-to-amateur use of the spectrum. It is hard enough for individual amateurs to avoid interference with changing propagation

Therefore I propose an alternative to the ARRL's semi-automatic mode proposal. I suggest that the existing automatic segments specified in part 97.221(b) be expanded slightly to accommodate unrestricted semi-automatic operation. I believe, as a long time amateur and a communications engineer, that the current wide band data transfer modes are far less bandwidth efficient that current narrower (500 Hz) data transfer modes. However as the practitioners appear to want to use less efficient wide (voice grade channel bandwidth) modes the semi-automatic and automatic stations segments should co-located in the 3.5 KHz segment of the bands. At some point in the (distant) future when intelligent modems are developed that can be proven to recognize existing communications and halt or significantly back off then this section of the regulations can be removed.

If this modification to control existing and expected interference from semi-automatic stations cannot be accommodated, I recommend rejecting this petition completely.

CONCLUSIONS

The proposal to regulate the use of Amateur Radio bands by bandwidth is a very good proposal and should be adopted. However, slight changes in the proposed start of the 500 Hz and 3.5 KHz sections need to be made as this is not a proposal to crowd out CW or a proposal to allow the expansion of SSB into the current RTTY/data segments. In addition the restrictions on semi-automatic stations needs to be increased by grouped with automatically operated stations.

I believe that modified as I have proposed and used in conjunction with voluntary national band plans that this proposal will provide a solid basis for continued experimentation in the art and science of radio communications.

Thank you very much for the opportunity to comment.

Regards,

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